

Amendments to the Drawings:

The attached Replacement Sheets of drawings include changes to Figs. 4, 5, 6 and 7. Figs. 4 and 5 have each been amended in the manner suggested by the Examiner to correct some minor informalities and Figs. 6 and 7 have each been amended to include "Prior Art" in the legend.

REMARKS

Claims 1 – 17 are pending in the application. By this Amendment, claims 1, 5, 8, 10 and 14 have each been amended. No new matter has been added. It is respectfully submitted that this Amendment is fully responsive to the Office Action dated March 29, 2005.

Claim Objections

Claims 10 - 17 stand objected to in item 3 of the Action due to a minor informality. However, claim 10 has been amended in the manner suggested by the Examiner to correct this informality. As such, withdrawal of this objection is respectfully requested.

Drawings:

Figures 6 and 7 are objected to in item 4 of the Action. However, it is respectfully submitted that Figures 6 and 7 have each been amended to include “Prior Art” in the legend as suggested by the Examiner.

In addition, figures 4 and 5 are objected to in item 5 of the Action. However, it is respectfully submitted that Figures 4 and 5 have each been amended in the manner as suggested by the Examiner. More specifically, one of the elements in Fig. 4 that is labelled as “24” has been changed to “25” and its legend “HDD” has also been changed to “CPU”, and the block (B4) “CPU” in Fig. 5 has been changed to “HDD.”

Accordingly, withdrawal of the objections to the drawings is respectfully requested.

As to the Merits

As to the merits of this case, the Examiner sets forth the following rejection:

claims 1 – 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Dunstan et al. (U.S. Patent No. 5,964,879) in view of Hetzler (U.S. Patent No. 5,954,820).

This rejection is respectfully traversed.

The present invention is directed to a method to obtain access information by the IO packets that are information between software modules. Therefore, it is different from Hetzler in which hardware module signals (signals in response to information input by a user) are monitored.

Dunstan discloses that the system has a table in which electric power properties for the respective devices according to system operating phases are written, and the power conditions of each device according to a system operating phase is known from the table. In order to realize such a system, a mechanism to know the device conditions from complex system operations is needed as well as resources such as a large memory and operation.

The Examiner states in the Office Action that, with the system disclosed in Dunstan, a peak-power generation condition is detected by looking up a table in which electric power properties of the respective devices according to system operating phases are written, that the power of each device is controlled by looking up the table, and that the power mode of each device is changed.

In this way, Dunstan manages static statuses in a table and the power has to be controlled while looking up the table according to a change in the system operating ^Phase, thus requiring a large memory. Also, a memory access and an operation by a CPU are needed, which would cause lower performance and increase costs and power consumption.

On the other hand, the present invention provides a method to monitor access by the IO packets between the device driver and the OS as a method to monitor a predetermined component. Because the system of the present invention can acquire the control information of devices that are to be dynamically controlled and can manage the statuses of each device, it is possible to process it by the minimum resource.

In line 5-9 in the column 2 of Dunstan, a method to control on/off of a display screen backlight in order to save an inrush current when a notebook PC is booted is disclosed. However, it is completely different from the method of the present invention to control a power by detecting a peak power from the IO packets. In line 64 of the column 8 to line 9 of the column 9 of Dunstan, only a method to update the table in which electrical power properties of the respective devices are written is disclosed, and this is irrelevant to the present invention.

The Office Action states that it is obvious that the components placed in a power-saving mode would be placed back in the normal-power mode when the peak-power generation condition is terminated. However, the object of the present invention is to immediately detect a termination of the peak-power generation and to simply and surely place from a current mode to the normal-power mode, thereby minimizing the restrictions which occur during the power-saving mode.

Although Hetzler does not discuss a method to monitor an access in detail, it is possible to assume that the access is monitored from signals between hardware modules. Therefore, this configuration is different from the present invention that detects access information from the IO packets between the software modules.

Hetzler discloses an estimate of the SEEK/READ power mode and the IDLE power mode in line 17-40 of the column 6. In line 30-51 of the column 8, a method to determine an access pattern is disclosed. This is different from the method of the present invention to detect a READ/WRITE request IO packets exchanged between the drivers of the OS as a method to detect the spin-up generation of the storage device, and to detect a peak power completion by a READ/WRITE completion IO packet. Hetzler does not teach this configuration, either.

The Examiner named a LCD backlight of a display subsystem and a display controller as a device which is not monitored, however, the display controller does not change the operation mode itself, thus it cannot be a device whose mode is changed as defined in Dunstan or the present invention.

Given that it is possible to change a mode of the display controller, it does not save any power at the peak because power consumption of the display controller is much less than an HDD or the backlight.

Also, because a host system directly controls a brightness of the LCD and the backlight, the display controller does not take part in the brightness control and the control of the backlight.

A processor in claim 4 is a main processor that causes the peak power. In a disk system, a spin-up of a motor, control of a servomotor and the like are reasons for the peak power. Because a power consumption of a micro-processor in the disk system is small, it cannot cause the peak power. Also, it is difficult to monitor the CPU use ratio and to detect the generation and completion of the peak power.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

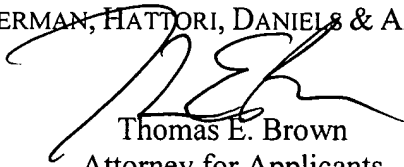
If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

Amendment under 37 CFR 1.111
Serial No. 09/809,106
Attorney Docket No. 010283

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP



Thomas E. Brown
Attorney for Applicants
Registration No. 44,450

TEB/jl

Attachments: Replacement Drawing Sheets (Figs. 4, 5, 6 and 7)

1250 Connecticut Avenue, NW
Suite 700
Washington, D.C. 20036
(202) 822-1100 (t)
(202) 822-1111 (f)